

## PART III.

### DETERMINATION OF THE CONSTANTS OF THE TRANSIT CIRCLE AND ITS SUBSIDIARY APPARATUS.

(52) *Value of one division of the Spirit Levels.*—It will be remembered that there are three levels—one striding level for each collimator, and a hanging level for the axis of the instrument. The former are distinguished by the letters A and B.

1865, October 18. The old mural circle was turned until the telescope was horizontal, and the collimator levels were set astride of the telescope. Microscopes A and B of the circle, and the two ends of the bubble of the level, were then read in different positions of the telescope, as follows:

Mic. A.	Mic. B.	Level A.		Level B.	
		S. end.	N. end.	S. end.	N. end.
"	"	d.	d.	d.	d.
57 67.9	70.8	18.4	42.3	18.5	38.3
54.2	56.4	1.1	25.2	1.6	21.5
75.2	77.9	27.8	51.3	27.5	47.3
54.4	57.1	2.3	28.2	3.0	22.8
75.1	77.5	26.6	50.5	26.4	46.2
65.2	67.8	15.0	39.1	16.4	36.2
Levels reversed					
54.1	56.8	44.5	25.5	41.0	21.2
60.9	63.4	36.5	12.5	34.1	14.2
49.7	52.8	50.0	26.1	46.0	25.2
71.0	73.8	23.2	0.6	21.4	1.6
50.2	52.8	49.6	25.5	45.8	25.0
68.8	71.2	26.7	2.5	24.3	4.6
59.9	62.7	37.2	13.4	34.0	14.2

Temperature 57°.

From the observations is concluded—

One division of level A = 0".826.

One division of level B = 0".850.

The level error of the collimators being kept quite small, rarely so great as 3", the value of one division,

0".84,

has been adopted for both levels.